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Case Report

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# Chest wall pilomatrixoma

Ayşegül Kurtoğlu Turan, Mahir Fattahov, Şevki Mustafa Demiröz
*Department of Thoracic Surgery, Faculty of Medicine, Gazi University, Ankara, Turkiye*

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**Corresponding Author:** Ayşegül Kurtoğlu Turan, aysegulkurtoglu61@gmail.com

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## ABSTRACT

Pilomatrixoma is a rare soft tissue tumor of generally benign nature that originates from pluripotent matrix cells and does not present specific radiological findings. It most commonly occurs in the second decade of life and in female individuals. Approximately half of the cases are localized in the head and neck region, and the main treatment method is surgical resection. In this report, we aimed to present two cases of chest wall pilomatrixoma in middle-aged male patients which were treated surgically.

**Keywords**: Pilomatrixoma, chest wall, soft tissue tumor

## INTRODUCTION

Pilomatrixoma or Malherbe's calcifying epithelioma was first described in 1880 and named pilomatrixoma by Forbis and Helwig in 1961. Pilomatrixoma originates from hair follicle cells. Most of these tumors exhibit a mutation in the CTNNB1 gene (3p22-p21.3), leading to overexpression of beta-catenin, which stimulates cell growth and proliferation.[1] Beta-catenin functions in Wnt signaling pathways as a cellular signaling and cytoskeletal protein. The presence of mutations is thought to increase the potential for transformation from benign pilomatrixoma to malignant pilomatrix carcinoma.[2] Although larger benign lesions have been reported in the literature, they are generally benign soft tissue tumors smaller than 3 cm. While most of these tumors are tend to be benign, cases of metastatic malignant pilomatrixoma have also been reported.[1-3] Nearly 50% occur in the head and neck region, but they can also be found on the thorax, trunk, and extremities. They are usually solitary nodules and rarely multiple. Cystic nodules may harden over time due to calcification. Their growth is slow, and they are more commonly seen in females by a 3:2 ratio in the first two decades of life.[3,4] Although the etiology is not fully understood, these tumors, which may be hereditary, have been found to be associated with Gardner syndrome, Steinert's disease, and sarcoidosis.[5] Additionally, post-vaccination (e.g., COVID-19, influenza) and trauma-associated cases have been reported.[6] Clinical and radiological features are non-specific. Ghost or shadow cells observed pathologically are diagnostic for pilomatrixoma.[7]

## CASE

In our study, we present two cases that were admitted to our clinic with complaints of a gradually growing and painful swelling on the chest wall. Both patients were male, aged 36 and 43 years, respectively. Both had nearly 2 cm in diameter, palpable lesions on the right anterior chest wall. Neither patient had a history of significant trauma, infection, or comorbidities. Both of the patients were active smokers. One patient reported that he had noticed the lesion for 4 months, and the other reported that he had noticed it for 6 months. Both patients reported that the lesion, which had been growing, had recently started to cause pain. Both patients were evaluated with ultrasonography and thoracic computed tomography (CT) [**Figure**]. It was reported as a solid, well-circumscribed lesion on the chest wall, with no radiological findings to suggest a specific diagnosis. Both patients underwent surgical excision with clear surgical margins. They were discharged the same day. The final histopathological examination revealed benign pilomatrixoma.

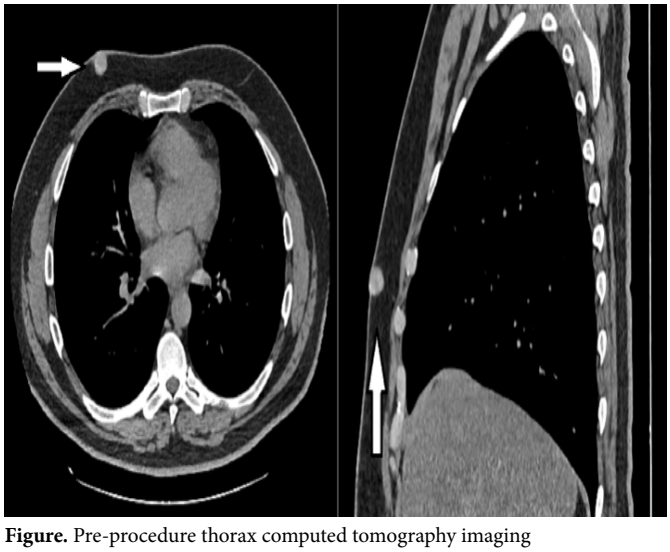

**Figure.** Pre-procedure thorax computed tomography imaging

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## CONCLUSION

Considering gender and age, our cases do not align with the literature. While pilomatrixomas are typically observed as single lesions in the head and neck region in 50% of cases, our cases had single lesions localized in the right anterior chest wall. In this regard, the number and location of lesions in our cases deviate from general literature findings. Consistent with the literature, the lesion size in both patients was under 3 cm, and there were no specific clinical or radiological findings. In conclusion, pilomatrixoma is a rarely seen pathological diagnosis that is often not considered in differential diagnosis and is generally benign. Chest wall lesions should also consider pilomatrixoma in the differential diagnosis alongside dermoid cysts, calcified hematomas, giant cell tumors, foreign body reactions, and lipomas. Surgical excision with clear margins remains the primary treatment, and generally, no additional treatment or follow-up is needed. However, the rare possibility of transformation into malignant pilomatrix carcinoma should not be overlooked.

## ETHICAL DECLARATIONS

### Informed Consent

All patients signed and free and informed consent form.

### Referee Evaluation Process

Externally peer-reviewed.

### Conflict of Interest Statement

The authors have no conflicts of interest to declare.

### Financial Disclosure

The authors declared that this study has received no financial support.

### Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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